Nuclear Field (NF)-6YO
ET, EM, MM

NAVY

The Navy's Nuclear Field (NF) program offers extensive training as nuclear propulsion plant operators and technicians to young men and women with aptitude in mathematics and science. The standards for selection for enlistment in the Navy's NF program are high. People applying for NF training must be dedicated to pursuing the challenge this highly technical field offers. Applicants should be mature, responsible, and capable of working well under pressure.

Qualifications. NF candidates must be U.S. citizens less than 25 years old at the time of enlistment, a high school diploma graduate with successful completion of one year of Algebra, and able to meet security clearance requirements.

Obligation. Active duty obligation is six years. Applicants must enlist for four years and concurrently execute an agreement to extend their enlistment for 24 months to accommodate the additional training involved.

Advancement. Personnel selected for nuclear training enter the Navy in paygrade E-3. Accelerated advancement to paygrade E-4 is authorized after personnel complete all advancement-in-rate requirements (to include minimum time in rate) and "A" School, provided eligibility in the NF Program is maintained.

Enlistment and reenlistment bonuses in addition to Navy salary, special duty assignment pay, and allowances for food and housing are available. Those who volunteer and are selected to serve on nuclear submarines (men only) are eligible for added submarine duty incentive pay from the day they graduate from nuclear training.

Career Opportunities. Three Navy job specialties, called "ratings", are included in the NF community: Machinist's Mate (MM), Electrician's Mate (EM), and Electronics Technician (ET). The rating in which a NF candidate is trained is determined at the Recruit Training Center.

Nuclear-trained MMs, EMs and ETs perform duties in nuclear propulsion plants operating reactor control, propulsion and power generation systems. The character of NF jobs is mentally stimulating and offers career growth. The NF provides opportunities to work closely with specialists in the nuclear, technology, and engineering fields.

The educational opportunities available to the nuclear-trained Sailor range from college-level classes in physics, chemistry, mathematics, electrical engineering and thermodynamics to nuclear engineering training in nuclear power plant design, construction, instrumentation and operations. The American Council on Education (ACE) has verified the extensive nature and unsurpassed quality of the Navy's nuclear propulsion training program by recommending up to 77 semester hours of college credit.

Career Path. After recruit training, NF candidates report to the NF "A" School in Charleston, SC for technical training in their specific ratings. They then attend Nuclear Power School (NPS) in Charleston, SC, where they learn theory and practical application of nuclear physics and reactor engineering. Following NPS, candidates begin prototype training in their rating specialty at one of two Nuclear Power Training Units (NPTUs). After nuclear power training, NF Sailors are designated nuclear propulsion plant operators. They may be assigned to modern nuclear powered aircraft carriers or volunteer for submarine service (men only).

Career Path After Recruit Training

School	Present Location	Approx. Training Time	Subjects	Training Methods
Nuclear Field Class "A" School	Charleston, SC	MM: 3 months	MM: Mathematics, physics, thermodynamics, mechanical theory, fluid flow, safety, general engineering maintenance, hand tools and test equipment, valves, piping fittings, bearings and lubrication, pumps, steam turbines, reduction gears, heat exchanges, condensers, air ejectors, air compressors, refrigeration, air conditioning, evaporators, propulsion plant piping systems overview	Classroom instruction with written tests; laboratories with practical application; computer aided instruction.
		EM: 6 months	EM: Mathematics, physics, AC/DC electrical theory, test equipment, maintenance and repair, safety, transistor theory, vacuum tube theory, communications, transmitters, receivers, pulse techniques, synchro-servos, magnetism and magnetic amplifiers, digital electronics, microprocessors, radar, AC/DC motors and generators	Classroom instruction with written tests; laboratories with practical application computer aided instruction.
		ET: 6 months	ET: Mathematics, physics, AC/DC electrical theory, test equipment, maintenance and repair, safety transistor theory, vacuum tube theory, communications, transmitters, receivers, pulse techniques, synchro-servos, magnetism and magnetic amplifiers, digital electronics, microprocessors, radar, AC/DC motors and generators	Classroom instruction with written tests; laboratories with practical application computer aided instruction.
Nuclear Power School	Charleston, SC	6 months	Mathematics, physics, chemistry, radiation, nuclear power plant components, reactor theory, heat transfer and fluid flow, principles of materials	College level classroom instruction with written tests; computer aided instruction.
Nuclear Power Training Unit	Ballston Spa, NY or Charleston, SC	6 months	Six weeks of specialized classroom instruction followed by 20 weeks of hands-on training at an operational nuclear reactor plant	Classroom, independent study, individual interviews/exams, hands-on training (watchstanding); computer aided training.

MACHINIST'S MATE NUCLEAR FIELD "A" SCHOOL - This course provides basic knowledge of technical mathematics and a basic understanding of the theory and operation of a steam power plant. Students learn to operate tools, test equipment, and system components; read blueprints; practice rigging techniques; and perform maintenance procedures such as packing a valve or aligning a pump coupling.

ELECTRICIAN'S MATE NUCLEAR FIELD "A" SCHOOL - This course provides basic knowledge of technical mathematics and a basic understanding of power distribution. Students solve basic equations using phasors, vector notations and basic trigonometry and analyze DC and AC circuits. Students demonstrate working knowledge of DC and AC motors and generators. Students learn to operate electrical equipment using controllers, and to properly test, maintain, troubleshoot, and repair electrical circuits, motors, cables, circuit breakers, and other related electrical equipment for power distribution.

ELECTRONICS TECHNICIAN NUCLEAR FIELD "A" SCHOOL - This course provides basic knowledge of technical mathematics and a good working knowledge of electricity and electronics, solid state devices, digital logic and systems, microprocessors, and instrumentation and control circuits. Students learn to interpret schematic diagrams and use appropriate test equipment to isolate and correct faults in electronic systems.

NUCLEAR POWER SCHOOL - This course provides a comprehensive understanding of a pressurized-water Naval nuclear power plant, including reactor core nuclear principles, heat transfer and fluid systems, plant chemistry and materials, mechanical and electrical systems, and radiological control.

PROTOTYPE TRAINING - This course provides knowledge of the fundamentals of a Naval nuclear power plant and the interrelationship of its mechanical, electrical, and reactor subsystems. Students develop oral communications skills. Students understand the physical nature of nuclear radiation, its detection, interaction with matter and human health consequences, and gain knowledge of the safe operation of a complex Naval nuclear power plant and its sophisticated subsystems with an emphasis on basic industrial safety principles. Students learn to identify, troubleshoot, and correct problems in nuclear mechanical, electrical, or reactor control systems at the component level with an emphasis on reactor systems, and apply earlier technical classroom knowledge gained to the practical safe operation of Naval nuclear power plants. Officers are given the broadest understanding of the plant subsystems, and are taught command skills to effectively lead the watch team in the safe operation of a Naval nuclear power plant.

The Navy is the leader in the development and safe operation of nuclear power plants and provides the most comprehensive technical education available in the NF. New and exciting career opportunities await the select group of people who possess nuclear knowledge and know-how, gained through Navy training.

Since Navy programs and courses are revised at times, the information contained in this rating card is subject to change.

Note: All applicants in this program must read and understand the NF Statement of Understanding.

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Nuclear Field Statement of Understanding

•**Active Duty Service Obligation-** Six years: accomplished by a four-year enlistment, plus a two-year extension of enlistment for training in the Nuclear Field.

•**Rating Assignment-**During recruit training, personnel not already guaranteed Machinist's Mate training will be selected for training in one of the following ratings: Machinist's Mate, Electrician's Mate or Electronics Technician. This decision will be based on the needs of the service, test score profile and, so far as possible, upon the personal desire of the individual.

• **Challenging Program-** The training program consists of three stages: 1) four to six months of intensive classroom instruction at Nuclear Field Class "A" school; 2) six months of intensive classroom instruction in mathematics, physics and basic engineering sciences at Nuclear Power School; and 3) six months of rigorous operational training and qualification on a nuclear reactor prototype plant. Nuclear Field personnel must demonstrate good academic performance in all phases of training. Markedly inferior performance, including very low passing final grades or obvious lack of effort in any training phase may result in disenrollment from the Nuclear Field program.

• **Duty Assignment-** The Nuclear Field program trains personnel for nuclear submarines (men only) and nuclear surface ship assignments. No promise can be made regarding the type of duty assigned.

• **Automatic Advancement-** Personnel in the Nuclear Field program will be enlisted in paygrade E-3. Advancement to paygrade E-4 is authorized only after personnel complete all advancement-in-rate requirements (to include minimum time in rate) and Class "A" School, provided eligibility in the Nuclear Field program is maintained. If Nuclear Field Class "A" School training is not completed, the member will be administratively reduced to E-2 or E-1, depending on the member's time in rate at the date of disenrollment. Upon acceptance of automatic advancement to paygrade E-4, the member will be obligated for 12-months of the two-year extension, in addition to the four-year enlistment, regardless of whether or not advanced training is completed.

• **Termination of training-** Having once volunteered, a Nuclear Field recruit will not be dropped for reason of non-volunteering. Determination of additional obligated service required following disenrollment from the Nuclear Field program will be in accordance with MILPERSMAN 1160-080.

• **Character-** Personnel in the Nuclear Field program must continually demonstrate by their professional performance, academic achievement and military behavior that they possess the ability, maturity, personal reliability, and integrity to complete the demanding training program and serve successfully as nuclear propulsion plant operators in the fleet. Consequently, any event which cast serious doubt on the member's ability to continually satisfy these high standards of conduct may result in that member's disenrollment from the Nuclear Field program.

•**Drug Abuse-** Entry into or continuation in the Nuclear Field program will be denied to any individual who has been convicted of, or who is identified as having, illegally, wrongfully or otherwise improperly used marijuana, narcotics, inhaled substances or other controlled substances, or illegally or wrongfully possessed or engaged in the sale of the same. This restriction applies prior to and after entry into active service, with the exception of waivers granted for experimental use of marijuana prior to entry into active duty.

• **Special Pay-** Personnel in the Nuclear Field who have completed Nuclear Power Training and been awarded a nuclear NEC receive Special Duty Assignment Pay (SDAP) in accordance with applicable NAVADMIN. Personnel assigned to submarine duty are eligible for submarine duty incentive pay, according to current pay tables.

• **College Credit-** College Credit is not granted by the Navy for courses studied at Nuclear Power School.

• **Department of Energy License to Operate a Reactor-** A license from the Department of Energy to operate a reactor plant is not granted by virtue of this training.

•**Advanced Education-** While Nuclear Field training may enhance a candidate's suitability for Navy advanced educational or officer candidate programs, no promise or guarantee of selection nor eligibility for any such program should be inferred.